DOCUMENT RESUME

ED 209 927 FL 012 641

AUTHOR Ammon, Mary Sue
TITLE Semantic Differentiation Among Expressions of Causality by Children and Adults.
INSTITUTION Stanford Univ., Calif. Dept. of Linguistics.
PUB DATE Nov 81
NOTE 13p.; In its Papers and Reports on Child Language Development, Number 20, p25-33, Nov 1981.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; *Child Language; *Language Acquisition; Language Research; Listening Comprehension; *Semantics; Young Children
IDENTIFIERS *Causatives (Grammar)

ABSTRACT

This study focuses on meaning differentiation among different causative expressions. Semantic differences between lexical and periphrastic expressions are reviewed. A picture comprehension task was administered to 32 adults and 99 children between the ages of 32 and 70 months. The children were asked to select the picture that matched a sentence read to them. Because it was thought that verbalizations would interact in many ways with pictured situations, item content was controlled by presenting different verbalizations with the same picture sets. Each subject heard two different verbalizations for each picture, and subjects were split into two groups so that on certain items the effect of four different verbalizations could be assessed. Responses for each item were categorized by the qualitative nature of the picture selected. Each item set was scored in terms of whether or not individual subjects switched their choices of picture due to the verbalization. The data from the adults were evaluated to determine the degree of match between their responses and the pattern hypothesized on the basis of the analysis above. Also considered were factors such as the semantic features of lexical items and real-world knowledge about the situation and participants involved. (JK)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED209927

SEMANTIC DIFFERENTIATION AMONG EXPRESSIONS OF CAUSALITY BY CHILDREN AND ADULTS

Mary Sue Ammon

from

PAPERS AND REPORTS ON CHILD LANGUAGE DEVELOPMENT

Number Twenty

November 1981

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Stanford Univ.
Dept. of Linguistics

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

FL 012 641

(C) 1981 by The Board of Trustees of the Leland Stanford Junior University

All Rights Reserved

Printed in the United States of America

SEMANTIC DIFFERENTIATION AMONG EXPRESSIONS OF CAUSALITY BY CHILDREN AND ADULTS*

Mary Sue Ammon
University of California, Berkeley

This study was part of a larger project investigating the development of linguistic expressions of causality in English. Though prior research has suggested that most linguistic mechanisms for expressing causality appear in spontaneous child speech by 2 1/2 years, it was hypothesized that within the early childhood years there would be important changes in the comprehension of linguistically encoded causal information due to development in inferential abilities and general understanding of causality, in knowledge and expectations about particular functions and contingencies, in information and language processing abilities, and in knowledge about the details of causative expression in English.

This part of the study focused most particularly on the last of these issues -- on meaning differentiation among different causative expressions. Though previous discussions in the literature have suggested that young children are not aware of meaning differences among lexical and periphrastic causatives (e.g., open the door vs. make the door open), it was hypothesized that comprehension data might provide evidence of semantic differentiation that is not obvious in examples taken from spontaneous production. Though some have seemed to assume the contrast between lexical and periphrastic causatives consists only in the distinction between physical manipulative causation expressed lexically and directive causation expressed periphrastically, in fact, the semantic picture is much more complex than that.

Shibatani (1973) has provided the most detailed analysis of hypothesized meaning contrasts between lexical and periphrastic causative verbs. But it is important to understand that none of the characteristics of lexical or periphrastic constructions to be summarized are determinate. That is, the features discussed hold most of the time for a majority of the lexical and periphrastic constructions, but can by no means be said to apply always.

Some of the semantic differences between lexical and periphrastic expressions suggested are the following:

(A) Lexical causatives express a more direct causal relation in that the result usually occurs at the same time and place as the causing action. In contrast, periphrastics tend to express more discrete or independent phases or activities where the agent does something which ends up manipulating or affecting the patient's physical or psychological state. (See sentences 1-3.)

1. Georgette moved the chair (lifted the chair which caused it to be relocated).
2. Georgette made the chair move (pulled the rug under the chair which caused it to be moved).

3. John made Mary happy. (John got a job which caused Mary to feel happy.)

(B) In lexical causatives, the causer usually acts directly and intentionally on the patient or causee. Though accidentally caused results can be expressed with lexical causatives, it is much more common to express such situations periphrastically.

(C) Lexical causatives are primarily used when the causee is being physically manipulated by the causer or when an animate causee is being treated as if he were nonvolitional, as in sentence 4. Periphrastic causatives are used primarily in situations where the volition of animate causees is acknowledged by using a verbal means of causation -- a directive, as in sentence 5.

4. I pushed Paul into the pool.
5. I had Paul go to the store.

(D) Although permissive causation or allowing can be expressed in English by a few lexical forms (e.g., drop, empty), most permissive causation is expressed periphrastically. And in those few lexical items where a permissive situation is encoded, it must be of the type where the causer acts directly on the causee (like pulling the plug in sentence 6), not the type of situation where the causer need not do anything (like letting the reservoir dry up, as in sentence 7).

6. Bambi emptied the bathtub (pulled the plug).
7. The water district let the reservoir dry up.

(E) Lexical causatives usually denote the normal or conventional way in which a particular action is carried out, as in sentence 8. Periphrastic causatives are more often used when some unusual manner or unusual force was employed (sentences 9 and 10).

8. Dan opened the garage door (pushed it up).
9. Dan made the garage door open (used a garage door opener to lift the door).
10. Dan got the door to open. (The door was stuck, but he opened it with the application of force.)

Despite the fact that all periphrastic causative verbs are used primarily to signal the overall causal relation, the particular periphrastic verb selected is frequently determined by other features of the situation being referred to. Some of these meaning differences among the major periphrastic causative verbs vary with factors such as directness of the causation and the animacy and volition of the causee.

Make can be used in more situations than other periphrastic verbs, including the situation where no lexical causative verb form exists to express direct causation. All periphrastic verbs imply the use of a directive when the causee is animate, but make additionally implies threat, force, or effort on the causer's part, as can be seen in sentences 11 and 12. Make can also be used for a variety of more indirect situations involving both animate and inanimate causees, including the changing of a person's psychological state (which obviously cannot directly be manipulated) and the manipulation of objects in ballistic situations such as throwing, where an autono-

mous physical event (e.g., a ball flying through the air) intervenes between the application of force and the accomplishment of the result.

11. I made Johnny go to school.
12. I made myself get to work.

Get is called "basically inchoative" by Baron (1972), in contrast to have which she calls "basically resultative." By this she means the focus is more on the act of causing with the verb get (sentence 13), and the focus is more on the result with the verb have (sentence 16). Get also seems to indicate resistence on the part of an animate causee, and with inanimate direct objects, sometimes expresses unconventional instrumentality or difficulty in accomplishing an action (sentence 14). Since have with animate causees always indicates a directive was used (sentence 15), a by-clause is never used with have periphrastics of this type. Other causative uses of have are infrequent, but resultative uses are common, like the situation illustrated in sentence 16.

13. I got the baby quiet (by rocking him for a half hour).
14. I got the TV to turn on (after kicking it).
15. I had Peter put on his shoes.
16. I had the baby quiet in ten minutes.

Let has three meanings in English. With animate (especially human) causees, the relation expressed is usually permissibility, and usually involves a verbal interchange (sentence 17). With inanimate causees, both a direct and an indirect "allow" relation is possible. The more direct permissive causality involves the causer doing something that allows an event to occur (sentence 18), while the indirect permissive causality indicates that the causer did not act, which resulted either in a change occurring or in a situation continuing unchanged. Sentences 19 and 20 illustrate these last two situations.

17. Lynn's mother let her go to school today.
18. I let the handkerchief drop in front of him.
19. I let the clock run down.
20. I let the christmas tree stay up until New Years.

The above description briefly summarizes the theoretical analyses of a number of linguists (Baron, 1972; Givon, 1975; McCawley, 1971; Talmy, 1976; and Shibatani, 1973). But do most adults actually interpret and select causative expressions most of the time according to these generalizations? How much are interpretations affected by real-world and cultural knowledge and expectations about particular participants and about usual ways of accomplishing particular results? And if meaning differentiations for causative expressions are part of the mature language user's knowledge of the use of English, when are they learned by children? The study to be outlined was a first effort aimed at examining these questions.

A picture comprehension task was administered to 99 children between the ages of 32 and 70 months and to 32 adults. In this task, children were asked to choose one alternative from a set of

three pictures that matched a sentence read to them. Since it was thought that verbalizations would interact in many complicated ways with pictured situations, item content was controlled by presenting different verbalizations with the same picture sets. Each subject heard two different verbalizations for each picture, and subjects were split into two groups so that on certain items the effect of four different verbalizations could be assessed. Causative expressions presented included simple causative verbs, and make, get, have and let periphrastic constructions. Picture alternatives were designed to present choices among simple physical manipulation, physical manipulation with force, physical causation with unusual instrumentality, directive causation, and one type of permissive situation -- the indirect allowing type. Responses for each item were categorized by the qualitative nature of the picture selected. In addition, each item set was scored in terms of whether or not individual subjects switched their choice of picture due to the verbalization.

The data from the adults were evaluated to determine the degree of match between their responses and the pattern hypothesized on the basis of the preceding analysis, and a consideration of factors such as the semantic features of lexical items and real-world knowledge about the situation and participants involved. Table 1 summarizes the predictions and observed response percentages for the available picture choices. Considering the constraint on the length of this report, I will go over the predictions and obtained results in detail for only one item. In item 3, the verbalizations presented to the two groups of subjects were:

3a. The genie pours the water.
3b. The genie makes the water pour.
3c. The genie lets the water pour.
3d. The genie has the water poured.

The pictures included the following four alternatives:

1. the simple pouring of water out of a bottle (the usual manner)
2. a "magical" causing of the bottle to pour by itself (unusual manner)
3. the directing of another person to do the pouring (directive)
4. the watching and noninterference with the water draining out (no contact allow)

The situation described in this verb pour incorporates an autonomous event component, and is usually thought of as involving an intrinsic durational element, in that water will continue to pour out of a container that is inverted until it is empty. In thinking about this event, one can focus on the activity during the time it is still continuing, or one can take a longer range view of the event after the movement of the water has stopped and the event is accomplished. Thus this verb can function either to describe activity or accomplishment (cf. Talmy, 1978, about this flexibility of view for many linguistic expressions.) The pictures for this items were

Table 1

Predicted and Observed Picture Choices by Adults

on Picture Comprehension 3

Item number and causative expression	Picture choices: Ordered predictions[a]	Observed proportions[b]	
1a. squirts toothpaste	usual manner	.81	(13)
	?force (+ unus. instr.)	.19	(3)
1b. makes toothpaste squirt	force (+ unus. instr.)	.59	(19)
	usual manner	.41	(13)
1c. gets toothpaste to squirt	force (+ unus. instr.)	.44	(7)
	unorthodox instrument	.31	(5)
	usual manner	.25	(4)
2a. bounces ball	usual manner	1.00	(32)
2b. gets ball to bounce	object instrument	.69	(11)
	usual manner	.31	(5)
2c. lets ball bounce	no-contact allow	1.00	(16)
3a. pours water	usual manner	.69	(11)
	[unusual means	.31	(5)]
3b. makes water pour	unusual means	1.00	(16)
	? usual manner	--	--
3c. lets water pour	no-contact allow	.81	(13)
	usual manner	.19	(3)
3d. has water poured	directive	.94	(15)
	[usual manner	.06	(1)]

Table 1 (Continued)

Item number and causative expression	Picture choices: Ordered predictions[a]	Observed proportions[b]	
4a. spins globe	usual manner	.94	(15)
	[directive	.06	(1)]
4b. has globe spun	directive	.88	(14)
	[usual manner	.06	(1)]
	[instrument	.06	(1)]
4c. gets globe to spin	unusual instrument	.50	(8)
	? usual manner	.44	(7)
	both pictures	.06	(1)
4d. lets globe spin	no-contact allow	1.00	(16)
5a. makes treasure chest open	effort	.88	(14)
	? usual manner	.06	(1)
	[implies instr.	.06	(1)]
5b. gets treasure chest to open	effort	.88	(14)
	[directive	.14	(2)]
5c. has treasure chest opened	directive	.94	(30)
	[usual manner	.06	(2)]
6a. shakes Ernie	usual manner	.06	(1)
	effort	.94	(15)
6b. has Ernie shaken	directive	1.00	(16)
6c. makes Ernie shake	usual manner	.63	(10)
	unusual instrument	.31	(5)
	no-contact allow	--	--
	both instr. & usual	.06	(1)
6d. lets Ernie shake	no-contact allow	.94	(15)
	[instrument	.06	(1)]

[a] Picture selections in brackets were not predicted.

[b] Numbers in parentheses are the actual observed frequencies.

designed to try to capture the more causative activity view rather than the more resultative accomplishment meaning.

For the lexical expression, "The genie pours the water," the picture of the genie directing a young man to pour the water would not have been a suitable choice, since the young man, not the genie, is pictured doing the pouring. And the unusual manner picture should not have been as likely a choice as the usual manner picture, since unusual manner is more often expressed periphrastically. However, as can be seen in Table 1, 31% of the adults selected the more indirect magical manner of pouring for the lexical expression. This suggests that expectations associated with particular agents may often override generic expectations associated with expressive form. Though make periphrastics sometimes can be used for usual manner situations when some indirectness such as that when an autonomous physical event is involved, no adults selected the usual manner of pouring picture for the make periphrastic expression. Again this suggests that clear expectations about methods employed by some agents may be more salient than expectations linked with aspectual features of the event described.

For the second group of subjects, the have periphrastic requires the directive interpretation, so long as the resultative interpretation is ruled out. And that was the prediction for 3d, given that the pouring was pictured as "in progress." But it was thought that the let periphrastic in 3c might be seen to match either the no-contact allow meaning or the usual manner of pouring action (if the latter picture were interpreted as taking a step which allows the autonomous event of water flowing to occur). As can be seen from the actual response percentages, adults responded pretty much as predicted.

And in general, results from the adult testing demonstrated clearly that though simple generalizations about the mapping between causal situations and causative forms are not possible, good predictions can be made by considering not only semantic generalizations about lexical and periphrastic causatives but certain sentence-specific particulars. Additional factors that appeared to affect the adult responses in this study included:

1) relevant inherent semantic features of the verb (such as the force connotations already present in the verbs shake and squirt);

2) involvement of autonomous physical events or indirectness in the causal relation described (such as was described for pouring);

3) expectations concerning the agent of action (as was seen with the genie);

4) the animacy of the direct object (e.g., the way let may sometimes be interpreted with inanimate direct objects); and

5) the syntactic form of the complement.

As with the adult data, the proportion of picture types selected by the different groups of children was charted for each verbalization within item sets. Examination of the details of each item is instructive, but, because of space limitations, I will discuss only the overall findings across the item sets, since it is from these

data that it is possible to address the general question of whether or not children understand that alternation among lexical and periphrastic causative forms signals distinctions about the manner in which causation is accomplished. Table 2 charts the mean proportion of different types of picture choices for lexical causatives and for have, let, make, and get periphrastics for each of the groups of children and for the adults.

It seems clear from consulting this table that children at all the ages tested do associate lexical causatives with the usual direct physical manipulation manner of causing. And a significant number of children at all ages demonstrated an association of let periphrastics with noncausal allowing relations. But there was also evidence that a number of children between 2 1/2 and 4 years confused causal and permissive situations. Possibly this was because let can encode situations in which the agent does act to set an autonomous event in motion, and possibly because the younger children are confused about the relation between the animacy of the direct object and the interpretation of let periphrastics. Although adults do not use lexical causatives to express more indirect causation involved in the use of an instrument (unless this use is already expressed or implied in the verb itself, e.g., hook), children, especially the youngest ones do not constrain interpretation in this way. And whereas adults frequently center on the dimension of force as signalled by particular lexical verbs like squirt and shake, or the periphrastic verbs make and get, children do not.

As in other tasks in the larger study, the youngest children (2.5 to 3.5 years) showed an ability to process explicit agent, action, and direct object information in the sentences. However, children above 3.5 years provided evidence that they were aware that lexical and periphrastic causatives sometimes signal a different manner of causation. But they seemed more aware of parts of the pattern for uses of lexical causatives and for let and make periphrastics than for get and have periphrastics. For example, a significant number of children in each age group above 3.5 years selected an unusual manner interpretation for make and discounted noncausative permission pictures. The oldest group of children also seemed to understand that make periphrastics do not signal the use of unorthodox instruments, whereas such interpretations are sometimes appropriate for get periphrastic causatives. However, none of the children seemed to understand the directive implications of the have periphrastic construction used (i.e., the past participial complement with the immediate causer not identified, such as in the expression, "The pirate has the treasure chest opened.") But many of the older children seemed aware that this expression was not synonymous with the lexical causative version of the same sentence.

Most items presented in this task involved inanimate direct objects. The results from the one item set (#6) with an animate object of causation suggest that the effect of this variable on the interpretation of causative expressions may be particularly problematic for children between 2.5 and 6 years. For example, the older children seemed to confuse the verbal coercion and physical force

Table 2.

Mean Proportion Picture Choices for Various Causative Verbalizations by Age

Age group	Picture type: Usual manner	Force	Unusual manner	Instrument: Usual	Instrument: Unusual	No-contact allow	Directive
Lexical causatives							
2;8-3;4	.48*	.29	.13	.38	.36	.28	.04**
3;8-4;4	.60*	.29	.33	.25	.26	.22	.02**
4;8-5;4	.76*	.36	.15	.29	.19	.04**	.04**
5;8-6;0	.71*	.38	.25	.25	.19	.06**	.00**
Adult	.75*	.56*	.31	.00**	.00**	.00**	.01**
Have + past participle complement							
2;8-3;4	.38	.26			.40	.42	.26
3;8-4;4	.42	.23			.27	.50	.29
4;8-5;4	.50*	.32			.54	.36	.13**
5;8-6;0	.43	.29			.63	.13	.29
Adult	.05**	.00**			.06**	.00**	.94*
Let + infinitive complement							
2;8-3;4	.28				.24	.48*	.24
3;8-4;4	.22				.33	.56*	.11**
4;8-5;4	.30				.19	.57*	.07**
5;8-6;0	.22				.25	.63*	.06**
Adult	.05**				.03**	.94*	.00**

Table 2. (Continued)

Age group	Picture type: Usual manner	Force	Unusual manner	Instrument: Usual	Instrument: Unusual	No-contact allow	Directive
Make + infinitive complement							
2;8-3;4	.31	.45	.25		.30	.26	.42
3;8-4;4	.48*	.26	.60*		.31	.07**	.17
4;8-5;4	.37	.32	.69*		.35	.08**	.29
5;8-6;0	.45	.21	1.00*		.13**	.06**	.63
Adult	.30	.69*	1.00*		.10**	.00**	.00**
Get + infinitive complement							
2;8-3;4	46	.10		.31	.41	.00**	.22
3;8-4;4	30	.33		.53	.48	.33	.15
4;8-5;4	.41	.35		.56	.37	.29	.15
5;8-6;0	.31	.38		.50	.38	.25	.25
Adult	.25	.66*		.69*	.41	.00**	.06**

Note. Proportions within age group do not sum to 1.00, since different items contributed to each cell. In all cases the proportions were calculated relative to the number of times the picture alternative was available for choice.

*$p < .025$ that proportion is this high by chance.
**$p < .025$ that proportion is this low by chance.

connotations of make appropriate for animate and inanimate direct objects, respectively. More data are needed to follow up this possibility.

Despite the exploratory nature of these analyses, the data seem to provide evidence that children of this age range do not treat lexical and periphrastic causatives as synonymous expressions. Though certain details of the complicated interaction between expressive form and the event described were not fully appreciated by the children, understanding of several implications in expressions having to do with the manner of causing and the degree of direct involvement by the agent showed development within this age range.

* This research was part of the author's doctoral dissertation while at the University of California, Berkeley. Requests for reprints should be addressed to: 3611 Tolman Hall, Bilingual Research Projects, University of California, Berkeley, Ca. 94720.

REFERENCES

Baron, N. The evolution of English periphrastic causatives: contributions to a general theory of linguistic variation and change. Unpublished Ph.D. dissertation, Stanford University, 1972.

Givon, T. Cause and control: on the semantics of interpersonal manipulation. In J. Kimball (Ed.), Syntax and semantics (Volume 4). New York: Seminar Press, 1975.

McCawley, J.D. Prelexical syntax. In R.J. O'Brien (Ed.), 22nd Annual Roundtable Monograph Series on Language and Linguistics, 1971, 24, Georgetown University Press, 19-33.

Shibatani, M. A linguistic study of causative constructions. Unpublished Ph.D. dissertation, University of California, Berkeley, 1973.

Talmy, L. Semantic causative types. In M. Shibatani (Ed.), Syntax and semantics: the grammar of causative constructions (Vol. 6), New York: Academic Press, 1976.

Talmy, L. The relation of grammar to cognition -- a synopsis. In D. Waltz (Ed.), Proceedings of theoretical issues in natural language processing. University of Illinois Coordinated Science Laboratory, 1978.